

AMENDMENTS TO THE DRAWINGS

Submitted herewith please find one replacement drawing sheet in compliance with 37 C.F.R. § 1.84. The Examiner is respectfully requested to acknowledge receipt of these drawings. The submitted drawings are intended to replace the drawings previously submitted on July 25, 2003.

Attachment: One Replacement Drawing Sheet (Fig. 3 and Fig. 4)

REMARKS

Claims 1-7 are all the claims pending in the application. Amendments to claims 1-7 are made merely to conform more closely to typical United States practice, are non-narrowing, and are not directed to overcoming any objection or rejection.

I. Objections to the Drawings

The Examiner has objected to the drawings because of references to Figs. 5a and 5b in the specification. Applicant respectfully points out that the Examiner may have failed to refer to the drawings as amended by the preliminary amendment of July 25, 2003, which amended original Fig. 5 to show Figs. 5a and 5b. Applicant, therefore, respectfully submits that no further correction of Figs. 5a and 5b is required.

The Examiner has also objected to a label of Fig. 4, stating that it should indicate nanometers rather than millimeters. Applicant hereby amends Fig. 4 accordingly, and thus, respectfully requests that the Examiner withdraw the objection.

II. Objections to the Specification

The Examiner has objected to the disclosure, contending that use of “a index” on p. 7 of the disclosure should be changed to “an index.” Applicant hereby amends the disclosure accordingly, and thus, respectfully requests that the Examiner withdraw the objection.

III. Objections to the Claims

The Examiner has objected to use of “comprising with” in claim 1, and “each others” in claim 3, as allegedly being idiomatically and grammatically incorrect, respectively. Applicant

amends these claims accordingly, and thus, respectfully requests that the Examiner withdraw the objection.

IV. Claim Rejections Under 35 U.S.C. § 112

Claim 3 stands rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Examiner contends that the requirement of “about 15 GHz” in claim 3 renders claim 3 indefinite because the specification allegedly does not provide a standard for ascertaining the requisite degree of certainty, and one of ordinary skill in the art would allegedly not be reasonably apprised of the scope of the invention.

Applicant respectfully disagrees with the Examiner’s position. “Acceptability of the claim language depends on whether one of ordinary skill in the art would understand what is claimed, in light of the specification.” MPEP § 2173.05(b). “The fact that claim language, including terms of degree, may not be precise, does not automatically render the claim indefinite under 35 U.S.C. 112, second paragraph.” Id. (citing Seattle Box Co. v. Indus. Crating & Packing, Inc., 731 F.2d 818, 221 U.S.P.Q. 568 (Fed. Cir. 1984)). Moreover, the MPEP notes that “as a general proposition, broadening modifiers are standard tools in claim drafting.” Id. For example, in Ex parte Eastwood, “the term ‘about’ used to define the area of the lower end of a mold as between 25 to about 45% of the mold entrance was held to be clear, but flexible.” MPEP § 2173.05(b)[A] (citing Ex parte Eastwood, 163 USPQ 316 (Bd. App. 1968)).

Here, the term “about” as used in claim 3 does not render claim 3 indefinite, because one of ordinary skill in the art at the time of invention would be reasonably apprised of the scope of

the invention, based on Applicant's disclosure. For example, page 2 of the specification states that "we are talking about T Bit/s [data rates]." Furthermore, Figs. 5a and 5b show aspects of an exemplary embodiment of the invention which clearly indicate the frequency spacing used in DWDM (75 GHz and 50 GHz) and filtering (15 GHz) in these exemplary embodiments.

Applicant, thus, respectfully submits that the requirement of a filter spacing of "about 15 GHz," as recited in claim 3, is not indefinite when properly read in light of the specification, because at least the above-cited portions of the specification provide clear scope to this element of claim 3. Accordingly, Applicant respectfully requests that the Examiner withdraw this rejection.

V. Claim Rejections Under 35 U.S.C. § 103

A. Claims 1-3

Claims 1-3 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Onaka et al. (U.S. 5,696,859, hereinafter "Onaka") in view of Willner et al (U.S. Pub. No. 2003/0123884, hereinafter "Willner").

Claim 1 requires that "the first filter has a transmission response with maximum transmission in the relevant sideband of said WDM channel." The Examiner cites col. 16, lines 28-36 of Onaka as allegedly teaching this element of claim 1. This portion of Onaka states that "the transmission-band center wavelengths of the filter elements 112, 114, and 114' are set at λ , $\lambda + \Delta\lambda$, and $\lambda - \Delta\lambda$."

The cited portion of Onaka merely appears to disclose that the filter elements 114 and 114' have transmission-band center wavelengths above and below that of filter element 112, by

an amount $\Delta\lambda$, and fails to disclose that the “maximum transmission” is “in the relevant sideband,” as required by claim 1. The amount $\Delta\lambda$ is determined based on the power transmitted, and is unrelated to the position of the sideband. For example, Onaka states the following:

$\Delta\lambda$ is set at a value about equal to the half width at half maximum of the characteristics of the filter elements 112 and 114 . . . so that when a light . . . passes through the main filter element 112 at the maximum transmissivity, only 50% of the maximum power of a light arriving at the control filter element 114 is passed on by it.

(Onaka at col. 14, ll. 39-47.)

Thus, the portions of Onaka cited by the Examiner fail to teach or suggest that the “maximum transmission” is “in the relevant sideband.”

Furthermore, Willner fails to make up for this deficiency of Onaka. The signal in Willner does not appear to be a “WDM channel,” as required by claim 1. Although Willner appears to discuss VSB filtering, Willner fails to teach or suggest VSB filtering as part of a system comprising transmitting and receiving WDM signals. Willner merely applies VSB filtering as part of a system for monitoring signals.

Moreover, the Examiner’s purported motivation to combine Willner is insufficient because Willner only applies to VSB filtering in a monitoring system, and presents no suggestion that VSB filtering could or should be used as part of a system differentiating WDM signals with dispersion. Willner contains no suggestion that at the much lower bit densities of Willner, (40Gb/s in Willner, as opposed to the Tb/s range in the current disclosure) there would be any reason to contemplate the combination of a VSB filtering technique with any system other than a monitoring system.

Willner also fails to teach or suggest that “the filters are tunable,” as required by claim 1. Elements 521 (incorrectly written as element 512 in fig. 5 of Willner) and 522 are not described as tunable in ¶ [0028] of Willner. Paragraph [0030] of Willner, cited by the Examiner, refers to the apparatus of Fig. 6, in which a single VSB tunable filter 610 is tuned to the lower side, then the upper side, of the carrier signal. These portions of Willner fail to teach or suggest a tunable carrier signal filter. In contrast, claim 1 requires that a “second filter” with its “transmission response with maximum transmission at the central wavelength of the channel,” as well as a “first filter” with its “transmission response with maximum transmission in the relevant sideband of said WDM channel, . . . are tunable.” Thus, Willner fails to teach or suggest this element of claim 1.

Accordingly, Applicant respectfully requests that the Examiner withdraw the rejection of claim 1 and its dependent claims 2 and 3.

B. Claim 4

Claim 4 stands rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Onaka in view of Willner, and further in view of Byron (U.S. 5,696,859).

The Examiner cites Byron merely for its alleged teachings of fiber Bragg grating filters. The cited portions of Byron do not appear to teach or suggest, for example, that the filters are tunable. The portions of Byron cited by the Examiner, thus, fail to make up for the deficiencies of Onaka and Willner, as set forth above. The combined teachings of the three references, taken together in any combination, thus lack the requirements of independent claim 1. Accordingly,

Applicant submits that claim 4 is patentable at least by virtue of its dependency from claim 1, and respectfully requests that the Examiner withdraw the rejection of claim 4.

C. Claims 5 and 6

Claim 5 and 6 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Onaka in view of Willner, and further in view of LoCascio et al. (U.S. Pub. No. 2004/0033020, hereinafter “LoCascio”).

The Examiner cites LoCascio merely for its alleged teachings of Fabry Perot Filters and planar lightwave circuits. The cited portions of LoCascio do not appear to teach or suggest, for example, that the filters are tunable. The portions of LoCascio cited by the Examiner, thus, fail to make up for the deficiencies of Onaka and Willner, as set forth above. Even taken together with Onaka and Willner, the teachings of LoCascio would not have led the artisan of ordinary skill to the subject matter of independent claim 1. Accordingly, Applicant submits that claims 5 and 6 are patentable at least by virtue of their dependency from claim 1, and respectfully requests that the Examiner withdraw the rejection of claims 5 and 6.

D. Claim 7

Claim 7 stands rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Hirano et al. (U.S. Pub. No. 2003/0002112, hereinafter “Hirano”) in view of Onaka.

Claim 7 requires “filtering with two parallel aligned filters where the first filter is filtering the sideband and the second filter is filtering the carrier wavelength.” The Examiner cites Fig. 12, elements 26-1 and 26-2 as allegedly teaching this element of claim 7. The related description of Fig. 12 of Hirano, however, states that elements 26-1 and 26-2 “extract two SSB components

of carrier suppressed RZ optical signals or extract respectively one single VSB component of NRZ or RZ optical signals.” (Hirano at ¶ [0106].) Thus, the two filter elements of Hirano cited by the Examiner do not appear to be “filtering the sideband” and “filtering the carrier wavelength,” respectively, as required by claim 7.

Claim 7 further requires “maintaining the distance between the maxima of the two filters.” The Examiner cites Fig. 7B as allegedly teaching this element of claim 7. However, Figs. 7A and 7B appear to show dividing LSB and USB bands with the “band dividing device 21,” whereas the “two filters” recited in claim 7 are “filtering the sideband” and “filtering the carrier wavelength.” Since Figs. 7A and 7B appear to show dividing the lower and upper side bands in order to make a phase comparison, a “filter . . . filtering the carrier wavelength” and a “filter . . . filtering the sideband,” as required by claim 7, would be ineffective for this purpose. Thus, there is no apparent teaching or suggestion in the cited portion of Hirano, or its related description, of “maintaining the distance between the maxima” of a filter “filtering the sideband” and a filter “filtering the carrier wavelength,” as required by claim 7.

Onaka is cited by the Examiner here only in order to allege that it teaches “adjusting the second filter exactly on the channel wavelength by a feed back loop.” However, Onaka fails to make up for the deficiencies of claim 7 described above, because the combination of Hirano in view of Onaka would render Hirano inoperable. Since the LSB and USB depicted in Figs. 7A and 7B of Hirano are required in order to perform a phase comparison, one filter “exactly on the channel wavelength,” together with one filter for either the LSB or USB, would fail to obtain both the LSB and USB portions of the signal. Thus, claim 7 is patentable over Hirano and

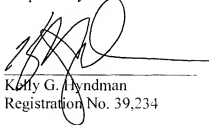
Onaka, alone or in combination. Accordingly, Applicant respectfully requests that the Examiner withdraw the rejection of claim 7.

VI. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly invited to contact the undersigned attorney at the telephone number listed below.

Applicant herewith petitions the Director of the USPTO to extend the time for reply to the above-identified Office Action for an appropriate length of time if necessary. Unless a check is attached, any fee due under 37 U.S.C. § 1.17(a) is being paid via the USPTO Electronic Filing System (EFS). The USPTO is also directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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